

**PATENT COOPERATION TREATY**

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

**PCT**  
*TRANSLATION*

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

		Date of mailing (day/month/year) <b>See form PCT/ISA/210</b>
Applicant's or agent's file reference <b>2004P00837WO</b>		FOR FURTHER ACTION See paragraph 2 below
International application No. <b>PCT/EP2005/050322</b>	International filing date (day/month/year) <b>26.01.2005</b>	Priority date (day/month/year) <b>03.02.2004</b>
International Patent Classification (IPC) or both national classification and IPC <b>H05K3/20, H05K1/03, C01B31/02</b>		
Applicant <b>SIEMENS AKTIENGESELLSCHAFT</b>		

i. This opinion contains indications relating to the following items:

- |                                     |              |  |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the opinion   |
| <input type="checkbox"/>            | Box No. II   | Priority   |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention   |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited  |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application   |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application  |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP	Authorized officer
Facsimile No.	Telephone No.

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Box No. I	Basis of this opinion
	<p>1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.</p> <p><input type="checkbox"/> This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).</p> <p>2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:</p> <p>a. type of material</p> <p><input type="checkbox"/> a sequence listing</p> <p><input type="checkbox"/> table(s) related to the sequence listing</p> <p>b. format of material</p> <p><input type="checkbox"/> in written format</p> <p><input type="checkbox"/> in computer readable form</p> <p>c. time of filing/furnishing</p> <p><input type="checkbox"/> contained in the international application as filed.</p> <p><input type="checkbox"/> filed together with the international application in computer readable form.</p> <p><input type="checkbox"/> furnished subsequently to this Authority for the purposes of search.</p> <p>3. <input type="checkbox"/> In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.</p> <p>4. Additional comments:</p>

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Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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**1. Statement**

Novelty (N)	Claims	YES
	<u>6-14, 18</u>	
	<u>1-5, 15-17, 19-24</u>	NO
Inventive step (IS)	Claims	YES
	<u>6-10, 18</u>	NO
Industrial applicability (IA)	Claims	YES
	<u>1-24</u>	NO

**2. Citations and explanations:**

**1. Reference is made to the following documents:**

D1: WO 00/73204

D2: WO 03/094226

**2. INDEPENDENT CLAIM 1**

2.1 The present application does not meet the requirements of PCT Article 33(1) because the subject matter of **claim 1** is not novel within the meaning of PCT Article 33(2).

Document D1 discloses (the references between parentheses relate to said document):

a method for arranging a conduction structure (carbon nanotubes) on a substrate (abstract) comprising the following method steps of:

- a) producing a separable connection between at least one transfer carrier (substrate) and the conduction structure (carbon nanotubes) (claim 1),
- b) joining together the transfer carrier (substrate) with the conduction structure (carbon nanotubes) and the substrate (second substrate), with the result that a connection between the conduction structure

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(carbon nanotubes) and the substrate (second substrate) is produced which is stronger than the separable connection between the transfer carrier (substrate) and the conduction structure (carbon nanotubes) (page 5, line 20 - page 6, line 6),  
c) separating the separable connection between the transfer carrier (substrate) and the conduction structure (carbon nanotubes) of the transfer carrier (substrate), the connection between the conduction structure (carbon nanotubes) and the substrate (second substrate) being maintained (claim 1).

Therefore, the subject matter of **claim 1** is not novel (PCT Article 33(2)).

3 INDEPENDENT CLAIM 20

3.1 The present application does not meet the requirements of PCT Article 33(1) because the subject matter of **claim 20** is not novel within the meaning of PCT Article 33(2).

Document D2 discloses (the references between parentheses relate to said document):

a substrate comprising a conduction structure (nanotube) which is connected to the substrate at a substrate contact area (conductor track) of the substrate and at at least one further substrate contact area (conductor track) of the substrate (claim 1, steps (a) and (b)), characterized in that the conduction structure (nanotube) has nanotubes between the two substrate contact areas (conductor tracks), said nanotubes being oriented from the

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substrate contact area to the further substrate contact area (claim 5).

Therefore, the subject matter of **claim 20** is not novel (PCT Article 33(2)).

4 DEPENDENT CLAIMS 2-10, 15-24

**Claims 2-10, 15-24** do not contain any features which, in combination with the features of any claim to which they refer, meet the PCT requirements for novelty and inventive step.

5 DEPENDENT CLAIMS 11-15

The combination of features contained in dependent **claims 11-15** is neither known from nor suggested by the available prior art. The reasons are as follows: none of the search report citations discloses or suggests the use of a macromolecule from the group deoxyribonucleic acid and/or protein as a transfer carrier substance for the production of a separable connection between a transfer carrier and a conduction structure.

It will appear from the description on pages 1, 2 and 9, 10 that the nanotubes are a feature that is essential to the definition of the invention. It is pointed out to the applicant that each independent claim must include all the technical features essential to the definition of the invention (PCT Article 6 in conjunction with PCT Rule 6.3(b)).